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101 WOOD AVENUE
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EXAMINER

TRAN, H

ART UNIT	PAPER NUMBER
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1764

DATE MAILED:

04/28/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
08/997,744

Applicant(s)
Chen et al

Examiner
Hien Tran

Group Art Unit
1764



☒ Responsive to communication(s) filed on Feb 25, 2000

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-21 is/are pending in the application.

Of the above, claim(s) 16 and 21 is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-15 and 17-20 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☒ Claims 1-21 are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Election/Restriction

1. Applicant's election with traverse of Group I, claims 1-15, 17-20 in Paper No. 8 is acknowledged. The traversal is on the ground(s) that 1) the method of group II is designed to be used in combination with the apparatus of group I and the catalytic converter of Group I is designed to be used in accordance with the method of Group II; 2) the examiner cited no examples to support the differences between Groups I and II and it is not apparent what process or what chemical compounds the catalytic converter can be used. This is not found persuasive because 1) the device by itself does not know what manner it can be used; 2) the catalytic converter as claimed can be used to practice another and materially difference process, such as the process of manufacturing a chemical compound in a hydrocracking of petroleum oil .

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 16 and 21 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention. Applicant timely traversed the restriction (election) requirement in Paper No. 8.

Specification

3. The disclosure is objected to because of the following informalities:

On page 16, line 1 "(Docket No. 3754) should be deleted.

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Appropriate correction is required.

4. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

¹⁰⁻¹¹
¹²
2, 8, 9, 13-15, 18-19 **Claim Rejections - 35 USC § 112**

5. Claims 1-15 and 17-20 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, line 16 apparently --]-- should be inserted after "temperature". ✓

In claim 2, line 3 it is unclear as to how the refractory carrier is related to the support material set forth in claim 1, line 7. See claims 18-19 likewise.

In claim 3 it is unclear as to what applicants are attempting to recite, i.e. whether applicants claim the catalyst converter or the combination of the catalytic converter system and the muffler, what is intended by "under where temperature ..."; in line 4 --stream-- is misspelled.

In claim 4 it is unclear as to what applicants are attempting to recite, i.e. whether applicants claim the catalyst converter or the combination of the catalytic converter, muffler and the tailpipe. Also it is unclear as to how the catalyst which is disposed at the tailpipe position is related to the catalyst which is disposed at a muffler position as set forth in claim 3.

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In claim 8, it is unclear as to how the muffler plates are related to the support material set forth in claim 1. See claim 14 likewise.

In claim 9, line 3 it is unclear as to how the refractory carrier is related to the support material set forth in claim 1.

In claim 12, lines 1-2 "said refractory carrier" lacks positive antecedent basis and it is unclear as to how the refractory carrier is related to the support material set forth in claim 1. See claims 13, 18-19 likewise.

In claim 15, lines 3-4 it is unclear as to how the refractory carrier is related to the support material set forth in claim 1.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-2, 6, (17-19)/1 are rejected under 35 U.S.C. 102(b) as being anticipated by Abe et al (5,538,697).

Abe et al disclose a catalytic reactor system located downstream of an engine, said system comprising:

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a catalyst 42 comprising a platinum group metal component dispersed on a refractory support carrier;

a hydrocarbon adsorbent 23 deposited on a refractory carrier.

The gas temperature at the inlet to the monolith is between 72 and 300 °C (see at least col. 21, lines 1-8).

With respect to claims 2, 6, 10-11, (17-19)/1, Abe et al disclose that the catalyst and adsorbent are disposed in separated layers or same layers deposited on the cell walls of a honeycomb configuration (see at least col. 4, lines 35-38; cols. 8-10 and Figs. 13-16).

Instant claims 1-2, 6, 10-11, (17-19)/1 structurally read on the apparatus of Abe et al.

8. Claims 1-2, 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 747,581.

EP 747,581 discloses a catalytic reactor system comprising:

a catalyst comprising a platinum group metal component dispersed on a refractory support carrier;

a hydrocarbon adsorbent deposited on a refractory carrier.

The gas temperature at the inlet to the monolith is between 40 and 300 °C (page 3, line 59).

With respect to claims 2, 10-11, EP 747,587 discloses that the catalyst and adsorbent are disposed in separated layers or same layers deposited on the cell walls of a honeycomb configuration (page 2, lines 55-59; page 3, lines 18-22).

Instant claims 1-2, 10-11 structurally read on the apparatus of EP 747,581.

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9. Claims 1-2, 10-11, (17-19)/1 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 96/39244.

WO 96/39244 discloses a catalytic reactor system comprising:

a catalyst comprising a platinum group metal component dispersed on a refractory support carrier;

a hydrocarbon adsorbent deposited on a refractory carrier (page 6, lines 10-22).

The gas temperature at the inlet to the monolith is between 150 and 200 °C.

With respect to claims 2, 10-11, (18-19)/17/1, WO 96/39244 discloses that the catalyst and adsorbent are disposed in separated layers or same layers deposited on the cell walls of a honeycomb configuration (page 6, lines 19-22, page 7, lines 8-12).

With respect to claim 17/1, WO 96/39244 discloses the specific amount of platinum group metal of 70 g/ft³ (page 9, line 20).

Instant claims 1-2, 10-11, (17-19)/1 structurally read on the apparatus of WO 96/39244.

10. Claims 1-2, 10-11, (17-19)/1 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 97/00119.

WO 97/00119 discloses a catalytic reactor system comprising:

a catalyst comprising a platinum group metal component dispersed on a refractory support carrier;

a hydrocarbon adsorbent deposited on a refractory carrier (page 6, lines 10-22).

The gas temperature is between 200-400 °C (page 30, line 5).

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With respect to claims 2, 10-11, (18-19)/17/1, WO 97/00119 discloses that the catalyst and adsorbent are disposed in separated layers or same layers deposited on the cell walls of a honeycomb configuration (page 19, lines 2-10).

With respect to claim 17/1, WO 97/00119 discloses the specific amount of platinum group metal of 1-200 g/ft³ (page 12, lines 10-11, page 14, lines 4-7).

Instant claims 1-2, 10-11, (17-19)/1 structurally read on the apparatus of WO 97/00119.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham v. John Deere Co.*, 148 USPQ 459, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or unobviousness.

13. The art area applicable to the instant invention is that of catalyst and adsorbent.

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One of ordinary skill in this art is considered to have at least a B.S. degree, with additional education in the field and at least 5 years practical experience working in the art; is aware of the state of the art as shown by the references of record, to include those cited by applicants and the examiner (*ESSO Research & Engineering V Kahn & Co*, 183 USPQ 582 1974) and who is presumed to know something about the art apart from what references alone teach (*In re Bode*, 193 USPQ 12, (16) CCPA 1977); and who is motivated by economics to depart from the prior art to reduce costs consistent with the desired product characteristics. *In re Clinton* 188 USPQ 365, 367 (CCPA 1976) and *In re Thompson* 192 USPQ 275, 277 (CCPA 1976).

14. Claims 1-2, 6, 10-11, (17-19)/1 are rejected under 35 U.S.C. § 103 as being unpatentable over EP 602,963 in view of Abe et al (5,538,697).

EP 602,963 discloses a catalytic reactor system comprising:

a catalyst comprising a platinum group metal component dispersed on a refractory support carrier;

a hydrocarbon adsorbent deposited on a refractory carrier.

EP 602,931 discloses that although the catalyst is preferably placed near the engine exhaust port, it may be placed at any other positions in the exhaust gas pipe (page 6, lines 28-29).

It would have been obvious to one having ordinary skill in the art to select an appropriate location for the catalyst based on the teaching of EP 602,931, such as at the specific distance downstream from the engine so as the as evidenced by Abe et al so as the gas temperature at the inlet to the monolith is between 72 and 300 °C (see at least col. 21, lines 1-8 in Abe et al) and since it has

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been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

With respect to claims 2, 10-11, (18-19)/17/1, EP 602,963 discloses that the catalyst and adsorbent are disposed in separated layers or same layers deposited on the cell walls of a honeycomb configuration (page 4, lines 18-39, page 5, lines 2-3).

With respect to claim 6, EP 602,963 discloses an additional upstream catalyst (page 6, line 8, Fig. 2).

With respect to claim 17/1, EP 602,963 discloses the specific amount of platinum group metal of 20-130 g/ft³ (page 5, line 32).

15. Claims 3-4, 8-9, 12-15, (17-19)/(3-4) are rejected under 35 U.S.C. § 103 as being unpatentable over WO 97/00119, EP 602,963 in view of Abe et al (5,538,697), or WO 96/39244 in view of Urata (5,218,817) and Giarrizzo (3,675,398).

The apparatus of either WO 97/00119, EP 602,963 or WO 96/39244 is substantially the same as that instantly claimed, but is silent as to whether the catalyst may be placed in the tail pipe or the muffler.

However, Urata and Giarrizzo show the conventionality of positioning the catalyst in the muffler and tail pipe.

It would have been obvious to one having ordinary skill in the art to select an appropriate location for the catalyst, such as at the muffler and tail pipe as taught by Urata and Giarrizzo in the apparatus of either WO 97/00119, EP 602,963 or WO 96/39244 to achieve the purification attendant

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therewith and since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

16. Claims 5, 7, (17-19)/5 are rejected under 35 U.S.C. § 103 as being unpatentable over either Abe et al (5,538,697) or EP 602,963 in view of Abe et al (5,538,697) as applied to claims 1-2 above and further in view of Dunne (5,078,979).

The apparatus of Abe et al or EP 602,963 modified by Abe et al is substantially the same as that instantly claimed, but is silent as to the specific properties of the adsorbent as claimed.

However, Dunne shows the conventionality of providing an adsorbent having specific properties as claimed.

It would have been obvious to one having ordinary skill in the art to select an appropriate adsorbent, as taught by Dunne in the apparatus of Abe et al or EP 602,963, if not inherent therein, to achieve the desired benefits of adsorbing HC since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

17. Claims 5, (17-19)/5 are rejected under 35 U.S.C. § 103 as being unpatentable over WO 97/00119 or WO 96/39244 in view of Dunne (5,078,979).

The same comment with respect to Dunne apply.

18. Claim 6 is rejected under 35 U.S.C. § 103 as being unpatentable over either EP 747,581, WO 97/00119 or WO 96/39244 in view of EP 602,963.

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The apparatus of either EP 747,581, WO 97/00119, WO 96/39244 is substantially the same as that instantly claimed, but fails to disclose whether an additional, upstream catalyst may be provided.

However, EP 602,963 show the conventionality of providing an additional, upstream catalyst.

It would have been obvious to one having ordinary skill in the art to provide an additional, upstream catalyst in the apparatus of either EP 747,581, WO 97/00119, WO 96/39244 as taught by EP 602,963 to further purify the exhaust gas thereof.

19. Claim 7 is rejected under 35 U.S.C. § 103 as being unpatentable over either EP 747,581, WO 97/00119 or WO 96/39244 in view of Dunne (5,078,979) as applied to claim 5 above and further in view of EP 602,963.

The same comment with respect to EP 602,963 apply.

20. Claims 3-4, 8-9, 12-15, (17-19)/(3-4) are rejected under 35 U.S.C. § 103 as being unpatentable over Abe et al (5,538,697) in view of Urata (5,218,817) and Giarrizzo (3,675,398).

The same comment with respect to Urata and Giarrizzo apply.

21. Claims 3-4, 8-9, 12-15 are rejected under 35 U.S.C. § 103 as being unpatentable over EP 747,581 in view of Urata (5,218,817) and Giarrizzo (3,675,398).

The same comment with respect to Urata and Giarrizzo apply.

22. Claim 5 is rejected under 35 U.S.C. § 103 as being unpatentable over EP 747,581 in view of Dunne (5,078,979).

The same comment with respect to Dunne apply.

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23. Claims (17-20)/1 are rejected under 35 U.S.C. § 103 as being unpatentable over EP 747,581 in view of WO 97/00119 or WO 96/39244 or EP 602,963.

EP 747,581 is silent as to the specific amount of the catalyst material.

It would have been obvious to one having ordinary skill in the art to select an appropriate amount of catalyst material as taught by WO 97/00119 or WO 96/39244 or EP 602,963 in the apparatus of EP 747,581 to achieve the purification attendant therewith, as use of such is conventional in the art and no cause for patentability here.

With respect to claim 20, EP 747,581 discloses that the catalyst has a light off temperature of 92 °C.

24. Claims (17-20)/(3-4) are rejected under 35 U.S.C. § 103 as being unpatentable over EP 747,581 in view of Urata (5,218,817) and Giarrizzo (3,675,398) as applied to claims 3-4 above and further in view of WO 97/00119 or WO 96/39244 or EP 602,963 for the same reasons set forth in paragraph 23 above.

25. Claims (17-20)/5 are rejected under 35 U.S.C. § 103 as being unpatentable over EP 747,581 in view of Dunne (5,078,979) as applied to claim 5 above and further in view of WO 97/00119 or WO 96/39244 or EP 602,963 for the same reasons set forth in paragraph 23 above.

26. Claim 20/(1) are rejected under 35 U.S.C. § 103 as being unpatentable over (Abe et al (5,538,697) or WO 97/00119 or WO 96/39244 or EP 602,963 in view of Abe et al (5,538,697)) as applied to claims 1-2 above and further in view of EP 747,581.

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WO 97/00119 or WO 96/39244 or EP 602,963 is silent as to the specific light-off temperature of the catalyst.

However, the catalyst of WO 97/00119 or WO 96/39244 or EP 602,963 is the same as that of the instant claim and therefore must have the same properties, i.e. the same light-off temperature.

In any event, EP 747,581 discloses provision of a catalyst having light-off temperature at 92 °C.

It would have been obvious to one having ordinary skill in the art to substitute the catalyst of EP 747,581 for the catalyst of WO 97/00119 or WO 96/39244 or EP 602,963 for the known and expected results of obtaining result in exhaust gas purification in the absence of unexpected results.

27. Claim 20/(3-4) are rejected under 35 U.S.C. § 103 as being unpatentable (Abe et al (5,538,697) or WO 97/00119 or WO 96/39244 or EP 602,963 in view of Abe et al (5,538,697)) in view of in view of Urata (5,218,817) and Giarrizzo (3,675,398) as applied to claims 3-4 above and further in view of EP 747,581 for the same reasons set forth in paragraph # 26 above.

28. Claim 20/(5) are rejected under 35 U.S.C. § 103 as being unpatentable over (Abe et al (5,538,697) or WO 97/00119 or WO 96/39244 or EP 602,963 in view of Abe et al (5,538,697)) in view of Dunne (5,078,979) as applied to claim 5 above and further in view of over EP 747,581 for the same reasons set forth in paragraph # 26 above.

Response to Arguments

29. Applicant's arguments filed 2/25/00 have been fully considered but they are not persuasive.

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Applicants argue that the inlet temperature in EP'581 is a synthetic exhaust gas and the catalyst of EP'581 is not disclosed to be located downstream of an engine never to be exposed to a temperature in excess of 550 °C. Such contention is not persuasive as the catalyst of EP'581 is located downstream of an engine (note Fig. 9). Although the gas is a synthetic gas, it shows that the catalyst of EP'581 must be exposed to such gas temperature which is less than 550 °C.

Applicants argue that although WO'244 and WO'119 discloses the gas inlet temperature of between 150 and 200 °C, but during this range there is very low conversion of NO and HC. Such contention is not persuasive as the "low conversion of NO and HC" does not change the fact that the catalyst is exposed to the specific gas inlet temperature of less than 550 °C.

Applicants' argument with respect to Urata, Giarrizzo, EP'963 and Dunne are noted. However, the secondary references of Urata and Giarrizzo are relied upon for teaching the conventionality of placing the catalyst system within the muffler and tailpipe positions. Dunne is relied upon for teaching the specific hydrocarbon adsorbent.

EP'963 is relied upon for teaching the specific catalyst material. Furthermore, although the primary references do not disclose the specific light off temperature, such is inherent therein since the catalyst material in the primary references is the same as that of the instant claims and therefore must possess the same property as that of the instant invention.

Note that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined

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teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Furthermore, Abe et al disclose that since the catalyst 42 is located at the downstream side, it is exposed to temperature of less than 550 °C (note col. 20, line 49 to col. 21, line 8).

Conclusion

30. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

31. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hien Tran whose telephone number is (703) 308-4253. The examiner can normally be reached on Monday-Thursday from 7:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marian Knode, can be reached on (703) 308-4311. The fax phone number for this Group is (703) 305-3599 (for Official papers after Final), (703) 305-5408 (for other Official papers) and (703) 305-6078 (for Unofficial papers).

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When filing a FAX in Group 1700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communication with the PTO that are not for entry into the file of the application. This will expedite processing of your papers.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.

HT
April 26, 2000

Hien Tran

**HIEN TRAN
PRIMARY EXAMINER
GROUP 1700**